What is claimed is a method

~~Claims~~

1. A method for redetermining the operating frequencies of base stations of an internal network, which is a first cellular radio network or a part of a first cellular radio network implemented indoors or in an otherwise restricted area, when the operating conditions of the internal network have changed, **characterized** in that the redetermination of the operating frequencies is performed on the basis of a frequency measurement performed for an earlier determination and information about a frequency plan of an external network, which is a second cellular radio network or a part of a second cellular radio network detected in the area of the internal network, by examining (3-5) if a frequency, which interferes with the base station of the internal network, has been taken into use in the external network.

2. A method according to Claim 1, **characterized** in that it includes the following steps:

- saving (1) the results of an earlier measurement, and

- if an interfering frequency is detected (3-5), changing (6) an interference-free frequency to the base station of the internal network on the basis of an earlier measurement and the information about the frequency plan of the external network.

3. A method according to Claim 1, **characterized** in that of the results of the earlier measurement, at least the frequency and the interference level and the identification information of that base station of the external network, which produces the interfering transmission, are saved (1) for the base stations of the internal network.

4. A method according to Claim 1, **characterized** in that when it is noticed that a base station recognized on the basis of an earlier measurement receives (9) in the new frequency plan a frequency already being used in a base station of the internal network, the frequency of the internal network is changed (6) to an interference-free frequency.

5. A method according to Claim 1, **characterized** in that when it is noticed that a base station recognized on the basis of an earlier measurement receives (9) in the new frequency plan a frequency which interferes with a frequency already being used in a base station of the internal network, the frequency of the base station of the internal network is changed (6) to an interference-free frequency.

6. A method according to Claim 1, **characterized** in that when it is detected (11) from the frequency plan that a frequency that was used by the external network and found to be affected by interference in an earlier measurement has become interference-free because it is not used any more, this frequency is taken into use by the internal network.

7. A method according to Claim 1, **characterized** in that it also includes the following steps for checking the suitability of the frequency to be taken into use:

- measuring (22) the signal strength (Rx Level) received in the area of the internal network in the measurement route when the base station of the internal network transmits a signal on the broadcast control channel (BCCH),

- examining (23) if a certain predetermined proportion of the measurement samples of the signal strength is higher than a minimum value set in advance.

8. A method according to Claim 7, **characterized** in that the C/I ratio is calculated (25) by using the measured samples of the signal strength (Rx Level) of the broadcast control channel (BCCH) and the interference measurement performed on the frequencies to be compared.

9. A method according to Claim 8, **characterized** in that

- it is examined (26) if the C/I ratio is better than a certain predetermined minimum value in all the samples, and

- the frequency is accepted (30) if the signal strength is sufficient and the C/I ratio is better than a certain limit.

10. A method according to Claim 7, **characterized** in that in addition, to prevent the crosstalk of an adjacent channel, a measurement and examination (28) for accepting (30) the frequency is performed.

11. A method according to Claim 10, **characterized** in that the strength of both adjacent channels is at the most by a certain predetermined maximum value higher than the signal strength of the channel being considered.

12. An arrangement for redetermining the operating frequencies of base stations of an internal network, which is a first cellular radio network or a part of a first cellular radio network implemented indoors or in an otherwise restricted area, when the operating frequencies have been earlier determined by frequency measurement but

the operating conditions of the internal network have changed, **characterized** in that it includes data processing means (13, 14, 15, 16, 17) for the redetermination of the operating frequencies on the basis of a frequency measurement performed for an earlier determination and information of an external network, which is a second cellular radio network or a part of a second cellular radio network detected in the area of the internal network, said data processing means including a database (17) for saving the operating frequencies in use at base stations of the external network.

13. An arrangement according to Claim 12, **characterized** in that it includes

- a first database (16) for saving the information of a measurement performed earlier,

- a second database (17) for saving the operating frequencies of base stations of the external network, and

- a processor (13) for the redetermination of the operating frequencies of base stations of the internal network carried out on the basis of the information of the first database and the second database.

14. An arrangement according to Claim 13, **characterized** in that the first database (16) comprises information about frequencies measured in an earlier measurement and the interference levels measured in them.

15. An arrangement according to Claim 14, **characterized** in that the information of at least one measured frequency comprise identification information of a base station of the external network detected at the frequency in question.

16. An arrangement according to Claim 14, **characterized** in that the first database (16) also comprises the following earlier measured pieces of information for checking the suitability of the frequency taken into use:

- the signal strength (Rx Level) received when the base station of the internal network transmits a signal on the broadcast control channel (BCCH),

17. An arrangement according to Claim 16, **characterized** in that the data saved earlier also comprise the C/I ratio, which has been calculated by using the samples of the signal strength (Rx Level) received on the broadcast control channel (BCCH) and the interference measurement carried out on other frequencies.